

# **Bayesian estimation of Multivariate Stochastic Volatility by applying state space models**

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## **Abstract**

This work seeks to apply a Bayesian analysis in estimating multivariate stochastic volatility (MSV) using state space models. A multiplicative model based on inverted Wishart and multivariate singular beta distributions is proposed for the evolution of the volatility, and a flexible sequential volatility updating is employed. Being computationally fast, the resulting estimation procedure is particularly suitable for on-line forecasting. Bayesian MCMC is applied to estimate high dimensional problems. Three test are conducted on estimates: the log likelihood criterion, the mean of standardized one-step forecast errors, and sequential Bayes factors. The test and procedure are applied in real data set that will comprise ten exchange rate Kenyan shillings versus other currencies in Nairobi stock exchange